

REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-7, 9-13, and 16-19 are presently active in this case, Claims 1, 4, 18, and 19 having been amended by way of the present Amendment.

The application provides support for the claim amendments, for example, on page 6, lines 16-18, page 12, line 12, and page 18, lines 22-26.

In the outstanding Official Action, Claims 1-3, 9, 16, and 18 were rejected under 35 U.S.C. 102(b) as being anticipated by Mogi (JP 10-180228). Claims 4-7, 10-13, 17, and 19 were rejected under 35 U.S.C. 103(a) as being unpatentable over Grylls et al. (U.S. Patent No. 4,188,407) in view of Mogi. For the reasons discussed below, the Applicants request the withdrawal of the art rejections.

Claims 1 and 18 recite a stirred tank comprising a tank body and a stirring impeller positioned within the tank body of the stirred tank. Claim 1 recites a tank body having a substantially cylindrical shape, a jacket disposed on a periphery of the tank body within which a cooling medium is circulated so as to cool the yeast slurry, and a stirring impeller made up of vertically oriented surfaces with no slant surface, having a shape and size varied in a vertical orientation, which variation achieving vertical flow of the yeast slurry. Claim 18 recites a tank body having a substantially cylindrical shape, a jacket disposed on a periphery of the tank body within which a cooling medium is circulated so as to cool the yeast slurry, and a stirring impeller including vertically flat surfaced paddle blades with no slanting

surfaces. The Applicants submit that the Mogi reference fails to disclose all of the above limitations recited in Claims 1 and 18 as will be discussed below.

As noted above, Claim 1 recites a stirring impeller made up of vertically oriented surfaces with no slant surface and Claim 18 recites a stirring impeller including vertically flat surfaced paddle blades with no slanting surfaces. The Mogi reference does not disclose such a feature. The Mogi reference depicts an agitating shaft (2) furnished with plural impellers or stirring aerofoils (3) at regular intervals in the axial direction. As seen in Figures 2 and 3 and as described in paragraphs [0028] and [0029], the impellers have a top face (3a), tongue section (3b), an obtuse angle ramp (3c), and a tube part (3d). As can be seen in Figure 3 (which is rotated 90° counterclockwise from vertical), none of the surfaces of the stirring aerofoils (3) are vertically oriented or flat. Furthermore, the stirring aerofoils (3) clearly have slanting surfaces, as is evident from a review of the top face (3a) in Figure 3 and which is described in paragraph [0028] as being inclined at a predetermined angle.

Accordingly, the Mogi reference clearly does not anticipate Claim 1, which expressly recites a stirring impeller made up of vertically oriented surfaces with no slant surface. Furthermore, the Mogi reference clearly does not anticipate Claim 18, which expressly recites a stirring impeller including vertically flat surfaced paddle blades with no slanting surfaces.

Additionally, the apparatus described in the Mogi reference does not appear to include a jacket disposed on a periphery of a tank body within which a cooling medium is circulated so as to cool a yeast slurry, as recited in Claims 1 and 18.

Thus, the Applicants respectfully request the withdrawal of the anticipation rejections

of Claims 1 and 18.

The claims that depend from Claims 1 and 18 are considered allowable for the reasons advanced for the independent claim from which they depend. These claims are further considered allowable as they recite other features of the invention that are neither disclosed nor suggested by the applied references when those features are considered within the context of their respective independent claim.

The Official Action indicates that “Mogi teaches the use of fermentation apparatus that has a stirring impeller that extends between 60-90% of the vessel’s inner diameter and a conical bottom.” The Applicants note, however, that the Mogi reference is directed to a garbage disposal apparatus, while the present invention is directed to the stirred tank for storing yeast slurry. Due to the different fields of invention, the actual form of a stirring impeller of the Mogi reference is clearly different from the stirring impeller of the present invention. Specifically, according to the stirring impeller of the present invention as recited in amended Claim 1, the stirring impeller is made up of vertically oriented surfaces with no slant surface. On the other hand, in the Mogi reference, as illustrated in Figure 1 and paragraph [0026], plural stirring impellers (3) are provided each with its width gradually decreased as it advances radially outwardly from the stirring shaft (2), as illustrated in Figures 2 and 3 and paragraph [0028]. Therefore the stirring impellers (3) of the Mogi reference necessarily do not have a vertically oriented surface with no slant surface unlike the present invention. For a garbage disposal apparatus as described in the Mogi reference, impellers of the shape depicted in Figures 2 and 3 thereof are preferable because of the particular arrangement where garbage is thrown into the apparatus from above, cut into

pieces and discharged from the bottom of the apparatus. The stirring impeller (3) of the Mogi reference having a shape as described above, which is designed to cut garbage into pieces, is clearly distinguishable from the present invention.

Regarding the obviousness rejection set forth in the Official Action, Claims 4 and 19 recite methods of manufacturing beer comprising, among other steps, providing a stirring impeller positioned within a tank body of the stirred tank. Claim 4 recites that the stirring impeller is made up of vertically oriented surfaces with no slant surface, having a shape and a size varied in a vertical orientation, which variation achieving vertical flow of the yeast slurry, and positioned within a tank body of the stirred tank, the tank body has a substantially cylindrical shape, and a jacket is disposed on a periphery of the tank body within which a cooling medium is circulated so as to cool the yeast slurry, and stirring the yeast slurry by rotating the stirring impeller at a rotational speed of 1-30 rpm, while setting a concentration of the yeast slurry within the tank body to 30-60%. Claim 19 recites that the stirring impeller includes vertically flat surfaced paddle blades with no slanting surface, the tank body has a substantially cylindrical shape, and a jacket is disposed on a periphery of the tank body within which a cooling medium is circulated so as to cool the yeast slurry, and stirring the yeast slurry by rotating the stirring impeller at a rational speed of 1-30 rpm, while setting a concentration of the yeast slurry within the tank body to 30-60%.

The Applicants respectfully submit that a *prima facie* case of obviousness has not been established in the present case base upon the combination of the Grylls et al. reference and the Mogi reference because (1) the references, either taken alone or in combination, do not teach or suggest all of the claim limitations, and (2) there is no suggestion or motivation

to combine the references. (See MPEP 2143.)

The Grylls reference describes a fluidized bed including a housing (1) having a stirrer rod (6) carried on a rotatable shaft (9). The rod (6) clearly does not teach a stirring impeller that is made up of vertically oriented surfaces with no slanting surface, as recited in Claim 4 of the present application, and a stirring impeller that includes vertically flat surfaced paddle blades with no slanting surface, as recited in Claim 19. The Grylls reference indicates that blades, rods, or bars can be used as a mechanical disintegrator of simple rectangular or circular cross-section, but specifically notes that the blades "should be twisted out of horizontal." (Col. 5, lines 13-16.) Such a twisted shape is similar to the teaching in the Mogi reference, as discussed above. Clearly such a teaching provides slanted surfaces. Accordingly, such a teaching is clearly distinguishing from a stirring impeller that is made up of vertically oriented surfaces with no slanting surface, as recited in Claim 4 of the present application, and a stirring impeller that includes vertically flat surfaced paddle blades with no slanting surface, as recited in Claim 19.

Furthermore, as discussed in detail above, the Mogi reference clearly does not teach or even suggest a stirring impeller made up of vertically oriented surfaces with no slant surface, or a stirring impeller including vertically flat surfaced paddle blades with no slanting surfaces. Therefore, neither of the cited references, either singularly or in combination, teaches the impeller having the features recited in Claims 4 and 19 of the present application. In fact, the Mogi reference teaches away from an impeller having such features, since the Mogi reference is directed to a different art (garbage treating device) and therefore teaches an

impeller having inclined surfaces designed to cut garbage into pieces.

Additionally, the Applicants note that the apparatus of the Grylls et al. reference is configured to stir dry yeast particles, rather than yeast slurry such as beer as in the present invention. Hence one of ordinary skill in the art would not have looked to the Grylls et al. reference to solve the problems that are solved by the present invention.

Since neither the Grylls et al. reference nor the Mogi reference teach, either singularly or in combination, a stirring impeller that is made up of vertically oriented surfaces with no slanting surface, as recited in Claim 4 of the present application, or a stirring impeller that includes vertically flat surfaced paddle blades with no slanting surface, as recited in Claim 19, then the Applicants submit that Claims 4 and 19 are not obvious in view of these references.

Additionally, neither the Mogi reference nor the Grylls et al. reference include a jacket disposed on a periphery of a tank body within which a cooling medium is circulated so as to cool a yeast slurry, or stirring the yeast slurry by rotating the stirring impeller at a rotational speed of 1-30 rpm, while setting a concentration of the yeast slurry within the tank body to 30-60%, as recited in Claims 4 and 19. Such features are not taught, nor even suggested by the cited references, due to the different fields of invention of the cited references from the present invention.

Thus, the Applicants respectfully request the withdrawal of the obviousness rejection of Claims 4 and 19.

The claims that depend from Claims 4 and 19 are considered allowable for the reasons advanced for the independent claim from which they depend. These claims are further

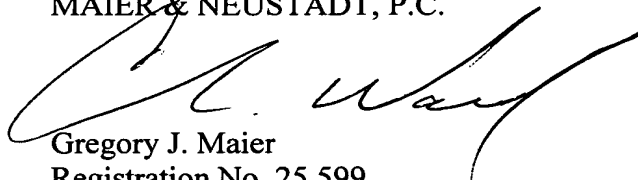
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considered allowable as they recite other features of the invention that are neither disclosed nor suggested by the applied references when those features are considered within the context of their respective independent claim.

Consequently, in view of the above discussion, it is respectfully submitted that the present application is in condition for formal allowance and an early and favorable reconsideration of this application is therefore requested.

Respectfully Submitted,

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